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wherein said illumination light is transmitted through or reflected by said sample and wherein said illumination light converges at said converging point.

32. (Twice Amended) A microscope observing method using an optical microscope apparatus comprising illuminating means for emitting an illumination light which converges at a point in a space; a sample mounting table for mounting a sample in front of said converging point of said illumination light; an objective lens positioned after said converging point such that said illumination light is incident thereon, wherein said illumination light is transmitted through or reflected by said sample and wherein said illumination light converges at said converging point; and a spatial filter, disposed at a position of a diffraction image plane, for selectively blocking a part of said illumination light transmitted through or reflected by said sample, said diffraction image plane being orthogonal to an optical axis of said illumination light and including said converging point; said objective lens being adapted to be focused on each of said diffraction image plane and said sample;

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said method comprising the steps of focusing said objective lens onto said diffraction image plane so as to observe a diffraction image of said sample formed on said diffraction image plane by said illumination light and adjusting said spatial filter such that only light from a desirable region of said diffraction image is transmitted therethrough; and then focusing said objective lens onto said sample so as to observe said sample with said light transmitted through said spatial filter.

33. (Twice Amended) A microscope observing method using an optical microscope apparatus comprising illuminating means for emitting an illumination light which converges at a point in a space; a sample mounting table for mounting a sample in front of said converging point of said illumination light; an objective lens positioned after said converging point such that said illumination light is incident thereon, wherein said illumination light is transmitted through or reflected by said sample and wherein said illumination light converges at said converging point; a polarizer disposed between said illuminating means and sample mounting table; an analyzer disposed between said sample mounting table and eyepiece; and a spatial filter, disposed at a position of a diffraction image plane, for selectively blocking a part of said illumination light transmitted through or reflected by said sample, said diffraction image plane being orthogonal to an optical axis of said illumination light and including said converging point; said objective lens being adapted to be focused on each of said diffraction image plane and said sample;

said method comprising the steps of focusing said objective lens onto said diffraction image plane so as to observe a diffraction image of said sample formed on said diffraction image plane by said illumination light and adjusting said spatial filter such that only light from a desirable region of said diffraction image is transmitted therethrough; and then focusing said objective lens onto said sample so as to observe said sample with said light transmitted through said spatial filter.

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36. (Twice Amended) A microscope observing method using an optical microscope apparatus comprising illuminating means for emitting an illumination light which converges at a

point in a space; a sample mounting table for mounting a sample in front of said converging point of said illumination light; an objective lens positioned after said converging point such that said illumination light is incident thereon, wherein said illumination light is transmitted through or reflected by said sample and wherein said illumination light converges at said converging point; and a spatial filter, disposed at a position of a diffraction image plane, for selectively blocking a part of said illumination light transmitted through or reflected by said sample, said diffraction image plane being orthogonal to an optical axis of said illumination light and including said converging point;

said objective lens being adapted to be focused on each of said diffraction image plane and said sample; said method comprising the steps of:

emitting an illumination light which converges at a point in a space,

mounting a sample in front of said converging point of said illumination light such that said illumination light is transmitted through or reflected by said sample,

converging said illumination light at said converging point,

selectively blocking a part of said illumination light transmitted through or reflected by said sample, and

changing the position of the converging point of the illumination light in the direction of the optical axis of said objective lens to adjust the size of the diffraction image.

37. (Twice Amended) A microscope observing method using an optical microscope apparatus comprising illuminating means for emitting an illumination light which converges at a point in a space; a sample mounting table for mounting a sample in front of said converging

point of said illumination light; an objective lens positioned after said converging point such that said illumination light is incident thereon, wherein said illumination light is transmitted through or reflected by said sample and wherein said illumination light converges at said converging point; a polarizer disposed between said illuminating means and sample mounting table; an analyzer disposed between said sample mounting table and eyepiece; and a spatial filter, disposed at a position of a diffraction image plane, for selectively blocking a part of said illumination light transmitted through or reflected by said sample, said diffraction image plane being orthogonal to an optical axis of said illumination light and including said converging point; said objective lens being adapted to be focused on each of said diffraction image plane and said sample; said method comprising the steps of:

emitting and polarizing an illumination light which converges at a point in a space,

mounting a sample in front of said converging point of said illumination light such that said illumination light is transmitted through or reflected by said sample,

converging said illumination light at said converging point,

selectively blocking a part of said illumination light transmitted through or reflected by said sample, and

changing the position of the converging point of the illumination light in the direction of optical axis of said objective lens to adjust the size of the diffraction image.